



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1101**      **Noah Koziar**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **the rise of the brownies**

**Summary:** In my project will see which of the ingredients will make brownies rise more, 3 tbsp of ground chia seeds, 1 tbsp of ground chia seeds, or three eggs it will also see if the amount of stirring counts they will either be stirred for 90 sec, 30 sec or 2 min 30 sec the order will be randomized my hypothesis is that the brownies with eggs and stirred for 2 min 30 sec will rise more than the brownies will be made with the rest of the batter when its time to put the eggs in we will put the in measuring cup and stir them with a fork for 15 sec than will let them sit for 3 min than it will go into the batter and be stirred for the correct amount of time than it will be put in the pan and be measured at time 0 we will record the results. will measure again at time 10. and time 25. for the chia seeds the process is simpler but when you put in the measuring cup fill water so the volume is the same than do what you did in the egg one. then we will print the results and put them on a science fair board and see which one rised more and see if my hypothesis was right.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1102**      **Beckett Robertson**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **splish, splash, CRASH**

**Summary:**    The purpose of my project will be to study the effect of water depth on wave velocity for tsunamis. A tsunami can cause serious destruction when it hits a coastline. In deep water a wave may be only a few feet high, but it can travel very fast. As a tsunami wave gets closer to the coastline it slows down, but increases in size. The final wave can be as high as 100 feet. I will make a model of a tsunami and investigate how wave speed depends on water depth. My question is: Does water depth effect the size and speed of the wave and does it match the mathematical equation for wave velocity as it depends on water depth?

The materials I will need for my experiment are: a water tank or container that will hold at least 41quarts, source of water, apiece of wood (2 inches thick, 4 inches wide and 8 inches long), permanent marker, a metric ruler, digital stopwatch, a lamp, hand towel, lab notebook, and graph paper.

If I have time, I would like like to see if there is any variation in speed/size of wave between a smooth bottomed and a pebbled bottomed tank.

I have not yet conducted my experiment, but will have my results ready for the Science Fair.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1103**      **Ahmed Fetar, Tareq Nouredin**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Soil Free Agriculture**

**Summary:** The traditional method of agriculture uses soil, water, sunlight, and fertilizers. In addition, it requires pesticides to prevent plant diseases and to avoid the effects of harmful insects. However, the problem is that this method requires too much water, a specific type of fertile land, long time to grow and specific environmental conditions and nutrients. The aim of this project is to study the possibility of soil-free agriculture using alternatives like polymers in order to save water and allow the growth of plants in harsh environments like deserts. The recent soil-free technology using hydrophilic membranes made of polymer, founded in Japan in 1995, allows plants to grow in deserts. This new technology saves water by 90% and uses 80% less fertilizers. In addition, the membrane does not allow the growth of bacteria and fungi, thus no pesticides are required. In our project, we are trying to mimic the membrane by using polymer found in diapers to study the effects of polymer versus soil in plant growth. In our experiment, we will examine three growing media; potting mix soil, diaper filling polymer, and an equal mix of both. Pea seeds will be planted in each of the three media pots. We will control the amount of water, the light source, and the temperature. We will then monitor the plant growth in each media to assess the rate of growth. We will also test the ability of the polymer to store water. We will also check the amount of bacteria in each media. This project will give us a hint about future alternatives to traditional agriculture methods.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1104**      **George Parsons**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Pop Goes The Moisture... or Not?**

**Summary:** My project is about popcorn, you see popcorn no matter the dryness always seems to have at least a little bit of water in it, that water keeps the cells alive until conditions are okay for sprouting. It is because of that little bit of water that the popcorn is poppable during the process of the popcorn seeds or kernels being heated very fast the water inside the kernel starts to evaporate into steam, steam that gives a pressure so high that it pushes through the hard kernel, once it's out of the kernel the gas spreads out rapidly, causing the soft starch in the seed to puff up into millions of tiny ridges-walled bubbles. This white styrofoamish like material is what we think of when we here popcorn. if you actually look at a piece of popcorn really closely you can see tiny pieces of a kernel from when it exploded and got turned inside out. My question is what would happen if you changed the amount of water in the seed? big time manufacturers jobs are to know just how much water you need in each kernel so you can get the tastiest treat you can. THE END



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1105**      **Michael Koven**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Red Bull**

**Summary:** My project is a research project on what makes a bull angry or as I call it red bull. I wanted to do this project because in all different cartoons or people saying that bulls get angry at the colour red well guess what they are actually it is colour blind to red. When people see bull fights they think it is the red muleta (the bullfighters red cape) and when the bullfighter moves the cape the bulls head sees the moment it will charge the reason for this is because bulls do not like movement in a close range of view. Some times with bulls and cows if you see them walking with their heads down its because their eyes are a lot worse than human eyesight so it takes longer for their eyes to focus. If they see something or a shadow they have no idea what it is. If its a ditch or a hole or something that could be life threatening to them. The bulls they use in bullfighting are called toro de lidia they are bread for these traits to have strength, stamina, energy, and aggression and their natural instinct is to charge. If you are perfectly still it wont charge and like dogs they can sense emotions like nervous for this example or scared.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1106**      **Erika Vander Wilp**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **No Name Brands**

**Summary:**    The goal of my project is to see if people can reliably tell the difference between two brands of food. I used No Name and more expensive brand name products. If people could not tell the difference, they could save money by buying the less expensive No Name products. My hypothesis is that people can tell the difference and will accurately identify which is the No Name product.

For my project I gave people at my church samples of food. In each case I gave them a No Name and a brand name food item of the same type. Then I asked them two questions: Can you tell the difference between the two foods? and Which one do you think is the No Name product? Overall, I tested five foods: pickles, cheese, chips, saltine crackers, and apple juice.

I recorded all the answers. When I examined the data, it turned out that between 84% and 89% of participants said they could tell the difference between the products. Only between 37% and 60% of participants could correctly identify the No Name product, however. In fact, only for apple juice could most people correctly identify the No Name product.

Overall, my hypothesis was correct that people could tell the difference between the products but incorrect regarding their ability to identify the No Name product.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1107** Owen de Wolde

**Div/Cat** Life and Earth / Primary

**Title:** Lawnergy

**Summary:** My hypothesis was that I could create a new eco energy utilizing grass because of the nitrogen. I was at the park and my moms phone was dying, I looked at the grass and thought I wonder if we can extract energy from grass. There is a lot of grass and lawn clippings go to waste. I researched and found how to test if I could get energy from grass by boiling water and taking temperatures at different times. I took 5 recordings and then with my dad did the math.

I proved that by heating the grass to the right temp. not burning it, I could get energy. My mom helped me with this part because I had to use the stove and I did not want to get burned. We used palm grass that I had to buy from a store because there was no grass outside for me to use, but it should work with any kind of grass.

I was able to get 7 joules of energy from the grass in about 20 minutes of low boiling in water. So my hypothesis was proven correct that I can get energy from grass clippings. I hope that maybe this could be a new type of energy in the future.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1108**      **Sofia de Bettignies**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Incentives to Recycle**

**Summary:**    The hypothesis of this project is that information about recycling may provide an incentive for people to recycle more. To test this hypothesis I separated subjects into a control group which did not receive information about recycling, and a treatment group which did receive information about it.

My results were consistent with my hypothesis. In the first part of my project I found that the treatment group recycled far more than the control group. This implies that informational campaigns do indeed work and that informational incentives are an effective way to motivate recycling. I also discovered that boys are more likely to recycle than girls.

Using a survey, I also found that the most common recycler in the family is the mother, that the majority of people put recycling in the garbage once a day, and that they also put compost in the garbage once a day as well. Most people always use their compost bin, and at the end of the day most of the recycling bins are filled to the top. Many people are big fans of recycling and find that it plays a vital role in keeping our earth clean.

My purpose is to try to make the world a cleaner place and I believe that with incentives we will be able to achieve that.

The objective of this project is to find out if informational incentives and campaigns actually do work.

My project is important because if informational incentives are successful in promoting recycling they can be used to motivate people to recycling more around the world.





# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1109**      **Kian Azimi**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Ice be gone in a friendly manner!**

**Summary:** In many cold countries like Canada, ice and snow removal is a huge and constant task during the winter months to make our roads safe and our daily lives possible. One of the most common deicer used to melt the snow and ice is adding salts or mixture of sand and salt to the roads. However, this has many negative effects on the environment. Some of these salts, especially sodium chloride, are harmful for pets and animals by hurting their paws when they walk on it, it corrodes the cars and makes them rust and it pollutes our waterways and harms the sealife. In this project, I will be searching for different compounds that can be used as deicers but are eco friendly and do not harm the environment. I will examine eight different solutions as deicers: Beet juice, potato juice, pickle brine, cheese brine, vinegar, rubbing alcohol, sugar and water solution, salt and water solution and compare them to the rock salt. The effectiveness of these solutions in melting the ice and snow will be measured by adding a set amount of each of these solutions (10 or 20 millilitre) to 50 grams of snow and crushed ice at controlled temperature of one degree celsius (using a fridge as controlled temperature environment). The amount of melted snow will be observed and the volume is measured every hour to find out which solution is the best and fastest in melting ice and what could be a better environmentally friendly replacement for our common deicer. The results will be shown as tables and charts and discussed in my presentation at the science fair. Please come by my presentation to find out which deicer works best in a friendly manner!



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1110**      **Erin MacBeth**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Ferrofluid**

**Summary:** My project is on ferrofluid. Ferrofluid is a liquid with a magnetic field that can be used for many purposes such as a rocket fuel that can be drawn towards a pump in a weightless environment, it can help to extract oil from large bodies of water, and it can help fight cancer by piloting the medicine to the affected area. My experiment is on observation. I am observing how more or less of iron oxide powder and/or vegetable oil can affect how magnetic the liquid is. My hypothesis is that having more vegetable oil than iron oxide powder would be the most magnetic and my hypothesis was supported. The way I tested my hypothesis was using different amounts of magnets such as for the first test I only had 2 magnets while on my second I had 5 magnets and so on. Ferrofluid was invented in the early 1960s by NASA's Steve Papell to be used as fuel. Then, in 2012 scientists discovered ferrofluid could also be used to extract oil from water. Later on, around 2015 scientists also discovered to use the liquid to fight cancer by using it to get to the most affected areas. Overall, my project is very interesting and I hope you will like it.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1111**      **Declan Green**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Eye Of The Tiger**

**Summary:**    The purpose of my project was to see if cats had a colour preference. I have grown up with cats all of my life and I wanted to learn more about how cats see the world. Cats eyes are different from humans eyes because cats have more rods than cones and human eyes have more cones the rods. Cones help us see colour and rods help us see light and dark. My hypothesis is that they will prefer the colour blue because cats have mostly blue cones in their eyes.

To test my hypothesis I made four cat toys, blue, red, yellow and green. I picked these colours by using the colours cones that cats have and the colour cones that humans have. I then dangled the toys six times in front of each cat and I made sure when I dangled them that there would be two different colours at a time. In total I did this with 12 cats.

After I finished my project five of the cats chose blue all of the time they could, and the other seven cats tied blue to be their favourite colour with one other colour, thus proving my hypothesis to be true that cat colour preference is blue.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1113**      **Hannah Farrer**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Earthquakes**

**Summary:** I will be doing my science fair project on Earthquakes and how they work by using a homemade seismometer. I chose this topic because I am interested in Natural disasters and how they work. I brainstormed some ideas and I got intrigued by the idea of making a homemade seismometer. I started to research some facts about earthquakes and how they occur.

I was trying to find out if when I shook the table the amplitude of the peaks would get higher. I thought that when I shook the table from 5 feet away then the peaks would not be very high but when I shook the table from 1 foot away I thought that the peaks would be really high. When I looked at my results I found that my hypothesis was correct. I created my seismometer by using wood and making a construction shaped crane. I then tied string around the end of the wood and poked some holes from the bottom of a plastic bottle. I took the cap off and then stuck duck tape where the cap was. I punched a hole in the duck tape and stuck a thin black pen through. I put 5 weights in the plastic bottle. I got a segment of paper and slid it on top of the wood base. I then began my experiment.

I am looking forward to sharing these results with you at the science fair.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1114**      **Jacob Isotalo**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Catch The Wave of Climate Change! How Big Will it be?**

**Summary:** Hi my name is Jacob and my project is on how high the ocean level of the Earth is going to rise due to climate change. I have conducted an experiment to test my hypothesis of how high the sea levels are going to rise over the course of the next 100 years (century). I think the sea levels will rise approximately 60 cm which is approximately equal to 2 ft. My estimate is based on how high sea levels are currently rising according to NASA which I then multiplied by 100 to get how much sea levels are going to rise in 100 years. But that number is based on how much the sea level is currently rising per year and does not take into account potential accelerations in sea level rise due to climate change. I think that 25 years or so from now that sea levels are going to be begin rising 6 mm per year instead of the current 3 mm per year. I think that the sea level will be rising 6 mm per year 25 years from now because I think that 25 years from now the ice in Antarctica is going to start melting much faster which I think will make the sea level rise per year increase by 200 percent. What I am doing for my experiment is I am replicating the conditions of Earth on a miniature scale and seeing how high the sea levels will rise and recording how long it takes to rise. Then I will be able to know if my hypothesis is correct.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1115 Benjamin Attwood-Carr**

**Div/Cat Life and Earth / Primary**

**Title: How do chemical spills affect our plants**

**Summary:**

"Question:

How do chemical and oil spills have a negative affect on our plants?

For my science fair project, I wanted to investigate to see how plants are affected by an oil spill and a chemical spill. For my experiment I used 1/3 cup of motor oil to represent an oil spill and 1/3 cup of chlorine bleach to represent a chemical spill. I used three spider plants for my experiment to represent an ecosystem.

I watered each plant on the first day and on day three I poured 1/3 of motor oil on one plant, 1/3 cup of bleach on one plant and the last plant was the controlled variable with 1/3 cup of water poured on it. I let all three plants grow for 3.5 weeks where they were equally watered, to see how the chemical spill and oil spill affected the plants growth.

Hypothesis:

My hypothesis is that both of the plants that were exposed to the toxins will be damaged, however the oil will have a worse affect on the spider plant. I believe this because the oil will not allow the water to pass through the soil, unlike bleach, the spider plant that was exposed to the oil will die first due to not getting the nutrition that the water gives it.

Observations:

Over the span of the 3.5 weeks I've seen the plants go through different things, some of them were unexpected.

My hypothesis was wrong. It was wrong because the bleach plant died first. I did some research and found that my household bleach causes irritation on eyes and skin. I'm saying that because its skin it's possible that is could do the same to plants surface layer. I documented differences in how the plants looked, their height and how they felt when I touched them. The death of the oil plant started with brown tips then with the roots. This did not happen to the bleach plant it started with the roots in the first five minutes then the tips of the plant died. The chlorine bleach dried up the soil in the first couple days of my experiment.

Conclusion:

In conclusion I learned that chemical spills seem to be deadly quicker and if it killed a spider plant that fast it could really damage plant a outside which would hurt nature and wildlife. The oil plant took a little longer to die but still could do a lot of damage to plants outside and hurt nature and wildlife too. If plants die than that affects human life too. People should be more careful if a spill happens it should be contained as fast as it can so it does not hurt as many things.

"



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1116**      **Claire Bennett**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Crude Awakening**

**Summary:**    "Crude Awakening  
By Claire Bennett

Have you ever wondered if oil from a spill spreads farther in tropical waters than Arctic oceans? The purpose of this project is to determine if oil would spread farther in tropical, Arctic, or temperate waters.

My hypothesis is that oil's viscosity is lower in the tropics, because the removal of heat usually increases the density of fluids.

To carry out this project, I will use a large bin to simulate the ocean. To create ocean water, I will add 35 grams of salt to each litre of water that I put in the bin. As I will be creating three ocean environments (tropical, temperate, Arctic) I will carry out the experiment with three water temperatures. Although most oil tankers carry crude oil, I will use motor oil for the oil spill. Using a small syringe, I will slowly drip 5 millilitres of oil onto the surface of the water in order to simulate an oil spill in the ocean. I will do this with each water temperature. To simulate natural wind currents, I will add in wind speed with a fan. In order to measure the spread of the oil spill, I will lay out a grid to determine the extent of the spill. Using this grid, I will wait a set amount of time before measuring the size of the oil spill by counting the squares it takes up in the grid. I will also photograph each oil spill and try to determine the size by counting pixels in a photo editing software.

The experiment comparing the spread of an oil spill in different water temperatures was not complete when this report was submitted. The results and conclusion will be presented at the fair.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1117**      **Kasra Kahani**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Solar Cells: Temperature Effect On It's Output**

**Summary:**    Have you ever questioned if temperature affects a solar cells output? My project is on solar cells and if a change of temperature affects the energy production of a solar cell (output voltage.) If the results show that whether temperature change affects the amount of energy produced, I could determine the optimal temperature of the solar cells most efficient operation.

By increasing the efficiency of operation, solar cells can become a viable alternative to coal and other resources that drastically produce climate change. I decided to choose this project because most people are oblivious to the fact that climate change is affecting the world right now this is why I want to convince society to have solar panels.

The method I used to discover whether temperature affects the output of the solar cell was to measure the temperature including the voltage of the solar cell and also used a LED light bulb so that there was no heat getting emitted or else it would have been an inclusive result. To find the conclusion I decided to show the effect of temperature on the voltage of the cell, with the cold and hot bags I had to find out which one has a positive or negative impact on the voltage. My hypothesis was that I didn't believe temperature will affect the energy delivered by photons, but might affect the operation of the solar cell.

My conclusion shows that ambient temperature does not affect the energy production of my solar cell or reduce the voltage produced. In low temperature, the solar cells efficiency increases by 12%. In high temperature the efficiency is reduced by 3%. Therefore my conclusion is that hot temperatures decrease the electricity produced were as cooler temperatures increase the electricity produced. And ambient temperature doesn't affect the solar cell at all.





# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

[www.flasf.on.ca](http://www.flasf.on.ca)

## Prefair Report

**1118**      **Kepler Diak, Micah James**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **Earth Field Flip Out**

**Summary:**    The earth's magnetic field is an awesome force that affects our daily lives. We wondered what would happen if the magnetic field of the earth reversed, since this was believed to have happened a very long time ago, and scientists are saying it could happen again. Are we ready? What if the change happens slowly or flips very fast? Since the earth's magnetic field lines look like a bar magnet with metal filings surrounding it, we proposed to use this to describe the earth's magnetic field. Our supplies consisted of a bar magnet, iron filings, wax paper and camera. Filings were placed over the wax paper and the paper lowered over the magnet. The pattern formed by the filings looked like the patterns shown in books on the earth's magnetic field. When we slowly rotated the magnet, the filings moved with the rotation. When we rotated the poles faster, the filings also moved faster, but our experiment could not flip like a light switch. Further research indicates that the field reversal is more like the magnet losing its strength. We are trying to figure out how to make our magnet weaker to show this same effect with the iron filing field lines.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

**1119**      **Tom Slack**

**Div/Cat**    **Life and Earth / Primary**

**Title:**      **In The Sewers...**

**Summary:**    Question:

For my Science Fair, I am learning about the plumbing system in a city. My focus is on what you can flush down the toilet without the sewers clogging. In case you didn't know, there are lots of things that people flush on a daily basis, like baby wipes and paper towels that isn't good for the plumbing system. My experiment will determine which material will be the safest item to flush down a toilet. For my experiment, I am seeing how toilet paper, paper towel, and Kleenex decompose in water over a period of weeks, and months.

Hypothesis:

For my hypothesis, I hypothesize that the toilet paper will dissolve first and then Kleenex and finally, paper towel. I think the toilet paper will dissolve first because during my research, the toilet paper will dissolve in the sewers, but the Kleenex and the paper towel won't dissolve as well. The toilet paper includes hemp fiber, and recycled materials, most of the time. The toilet paper has special materials like gum, and oak, that allows it to dissolve in the sewers, unlike the Kleenex and paper towel. Organic molecules also help the materials in the toilet paper break down easier. The Kleenex is made with cellulose fibers, and materials to make it additive and strong.

Research:

During my research, I researched about sewers, the plumbing system, and what are bad and good things to flush. A sewer is an underground pipe that transposes sewage and other waste to treatment facilities or taken to dispose. People who live on farms, or away from the big cities, have septic tanks. Septic tanks must manually be taken to treatments. In the treatments, there are three tests to making treated wastewater, physical, chemical, and biological treatments. The first treatment is to eradicate the oils and greases by putting the waste in a tank and letting the oils skimmer off. The second treatment is to degrade the waste from humans, food waste, soap, etc. The final treatment is to improve the quality, before it is disposed in lakes and rivers. I also researched facts about paper towel and Kleenex, which are the things that I am testing with. Plumbing pipes get clogged pretty regularly. When your toilet pipes get clogged, the water can't go down the drain, it will come out the lowest point, the shower drain. You can actually unclog a toilet by pouring baking soda and vinegar in it.

Materials:

These are the materials I used to conduct the experiment:

- Three clear glass jars (to be announced)
- A roll of paper towel (to be announced) 2 pieces
- A roll of toilet paper - Royale Original - 8 pieces
- A box of Kleenex (NOT THE BOX) 4 pieces
- A spoon to help with observations
- 5 1/3 cups of water in each jar.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

1120      **Nicolas Franklin**

Div/Cat    **Life and Earth / Primary**

Title:      **Plants and the Air we Breathe - How hard do plants really work?**

**Summary:** Have you ever wondered just how useful plants really are in helping to keep our air clean? I decided to do an experiment to try and find out how much carbon dioxide a single plant consumes. Photosynthesis is the process used by plants to convert light energy into chemical energy. All types of plants and trees have this capability. Trees and plants absorb water from the ground, carbon dioxide from the air, and sunlight from the sun. Sunlight is absorbed by the chloroplasts in the leaves which contain a green pigment called chlorophyll. This energy is used to drive chemical reactions. The products of this chemical reaction are sugar (carbohydrate molecules) and oxygen, and a small amount of water. The oxygen and water are released into Earth's atmosphere and the sugar stays inside the leaves. Plants are dependent on photosynthesis to make their own energy, and all animals depend on the energy in the plants for their own use. Planet Earth could not sustain life without oxygen and water. None of us could live without photosynthesis.

Global warming has become a major environmental crisis. The role of plants is critical in helping manage the levels of carbon dioxide in the environment. This is why rainforests are referred to as "carbon sinks." Carbon dioxide is one of the major greenhouse gases contributing to the "greenhouse effect".

With this project I hope to show that even one plant consumes a measurable amount of carbon dioxide. This would really highlight the importance of every plant and tree. I hope this helps to raise awareness to the damage we cause by deforestation and production of greenhouse gases.

My experiment will involve a sealed container which contains a plant in water and a CO<sub>2</sub> monitor. The independent variables will be exposure to sunlight and to darkness. The dependent variable will be the measured level of CO<sub>2</sub>. The controlled variable will be a measure of CO<sub>2</sub> in an empty sealed container.

I believe that a single plant can consume a measurable amount of carbon dioxide. I believe that the plant in darkness will consume some CO<sub>2</sub> but not a lot, because there has to be sunlight for photosynthesis to happen. The plant in sunlight will probably consume a lot of CO<sub>2</sub> because with a lot of sunlight, photosynthesis will happen readily. The CO<sub>2</sub> levels in the empty container should stay constant.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

1121      **Hadley Fraser**

Div/Cat      **Life and Earth / Primary**

Title:      **Bioplastics: Saving the Planet One Bag at a Time**

**Summary:** I chose to examine bioplastics as a science fair topic because one of my chores is to sort and take out the recycling for garbage collection. It got me thinking - where does all this plastic go and does it all biodegrade or decompose? I wanted to learn more and research if there was a plastic that could truly decompose. Did you know, we use almost a trillion plastic bags each year and that works out to almost 1 million per minute!

My experiment has real life significance because we now produce nearly 300 million tons of plastic every year. More than half of this will end up in landfills and our oceans. It takes more than 450 years for a single plastic water bottle to biodegrade. This is because traditional plastic is made out of petroleum, which is a non-renewable resource and and it takes hundreds and hundreds if not thousands of years to biodegrade.

Therefore it is important that we find an alternative to traditional non-biodegradable plastic. The purpose of my experiment is to research and test a bio plastic which I will make in my home using potato starch and ingredients that will decompose, and to look at how adjusting the amount of glycerine in the recipe will affect the bio plastics strength and it's biodegradabilty in an effort to find a superior plastic. I will make a recipe with 5ml of glycerine and one with 10ml glycerine. I will conduct a tensile type test to determine the strongest and I will conduct another test using amylase to determine how each recipe biodegrades. I will analyze the results and determine which recipe would make the best plastic, and specifically the best plastic bag. Results will be available at the science fair. We owe it to future generations to find an alternative to drowning our planet in plastic. My experiment has real life significance because we now produce nearly 300 million tons of plastic every year. More than half of this will end up in landfills and our oceans. It takes more than 450 years for a single plastic water bottle to biodegrade. This is because traditional plastic is made out of petroleum, which is a non-renewable resource and and it takes hundreds and hundreds if not thousands of years to biodegrade. Therefore it is important that we find an alternative to traditional non-biodegradable plastic.



# Frontenac, Lennox & Addington Science Fair

*Expo-sciences de Frontenac, Lennox & Addington*

www.flasf.on.ca

## Prefair Report

1122 Charlotte Saleh

Div/Cat Life and Earth / Primary

Title: Bubbles, bubbles, toil and trouble?

**Summary:** Bubbles, bubbles toil and trouble. Is there anything more refreshing than ice cold water? Whether you prefer bubbly (Carbonated) water or Still water, ice cold water requires ICE.

This experiment looks at whether Carbonated or Still Water melts ice cubes more quickly. Ice cubes of similar weight were placed in equal amounts of either Carbonated and Still Water. The Water in both conditions was measured at an equivalent temperature. The temperature of both the Carbonated and Still Water was measured at different time intervals. As well, the approximate size of the melting ice cube was also compared. Each condition, either the Carbonated or Still Water, was repeated three times. Furthermore, as a control, ice cubes of equal weight were left at room temperature to melt and were assessed by time and approximate size of the ice cube. Due to the increased friction of the bubbles in the Carbonated Water, and the salt present in Carbonated Water, I hypothesized this condition would result in the ice melting more quickly. The results support my hypothesis that Carbonated Water did melt the ice more quickly. The results of my experiment might encourage restaurants to place more ice in the cups of Carbonated water, than in their still.